APPENDIX II

Notation

1. The symbols that follow are used throughout this manual and correspond wherever possible to those recommended by the American Society of Civil Engineers.

Symbol	Term
A, B	Skempton's experimentally determined pore pressure coefficients
a_h	Horizontal seismic acceleration
b	Cot β = cotangent of the embankment slope angle with the horizontal
C_A	Developed cohesion force of active wedge
C_{CB}	Developed cohesion force of central block
C_D	Developed cohesion force
C_P	Developed cohesion force of passive wedge
c	Cohesion per unit area
c_D	Developed cohesion per unit area (cohesion required for equilibrium)
D	Depth of foundation layer
E	Earth force on side of slice
E_A	Resultant force of active wedge
E_{CB}	Resultant force of central block
E_P	Resultant force of passive wedge
ΔE_H	Force required to close force polygon in wedge analysis
ΔE	Resultant of earth forces on left and right sides of slice (modified Swedish method: Finite Slice Procedure)
$\Delta E'$	Resultant of earth forces acting on left and right sides of the unit width slice in units of γ_{base} (modified Swedish method: Graphical Integration Procedure)
F_A	Resultant of normal and frictional forces of active wedges
F_{CB}	Resultant of normal and frictional forces of central block
F_D	Resultant of developed normal and frictional forces

Symbol	Term
F_h	Horizontal seismic force
F_P	Resultant of normal and frictional forces of passive wedge
F.S.	Factor of safety
g	Gravitational constant
H	Height of embankment
H_D	Height of drawdown
h	Vertical distance to failure surface from slope surface
h'	Modified height obtained from $h(\gamma/\gamma_{base})$
h_w	Piezometric level above the failure surface; height of maximum pool above sliding surface
K	Ratio of horizontal to vertical earth pressures
K_A	Active earth pressure coefficient
K_o	Coefficient of at-rest earth pressure
K_P	Passive earth pressure coefficient
k	Coefficient of permeability
L	Length of arc or failure surface; length beneath passive block along which cohesive shear resistance is assumed to develop
L'	Width of the slice parallel to the saturation line
ΔL	Length of base of slice
N	Total normal force
N_D	Developed normal force
N_K	Active earth pressure stability number, $\frac{bc_D}{\gamma H}$
N_s	Stability factor, $\frac{\gamma H}{c_D}$
n	Porosity
n_e	Effective porosity
P_D	Dimensionless parameter = $\frac{k}{n_e V}$
p_h	Horizontal pressure at depth z
Q	Shear test for specimen tested at constant water content (unconsolidated-undrained)
$\overline{Q}$	Q shear test with pore pressure measurements

Symbol	Term
R	(a) Radius of failure arc (b) Shear test for specimen consolidated then sheared at constant water content (consolidated-undrained)
$\overline{R}$	R shear test with pore pressure measurements
S	Shear test for specimen consolidated and sheared without restriction of change in water content (consolidated-drained)
s	Shear strength; $s = c + \sigma \tan \phi$
s_D	Developed shear strength; $s_D = c_D + \sigma \tan \phi_D$
U	Hydrostatic force
u	Pore water pressure
V	Velocity of pool drawdown
W	Total weight of slice or soil mass above failure plane
W_p	Weight of passive block or subblocks above plane along which frictional shear resistance is assumed to develop
X	Dimensionless height ratio (Appendix III)
z	Distance beneath crest
α	Angle of inclination of the saturation line with the horizontal
α_f	Angle of inclination of failure plane (based on laboratory shear test results)
β	Angle of inclination of the embankment slope with the horizontal
γ	Weight per unit volume
γ'	Buoyant unit weight of the soil
γ_{base}	Base unit weight used in graphical integration procedure of modified Swedish method
γ_m	Moist unit weight of the soil
γ_{sat}	Saturated unit weight of the soil
γ_w	Unit weight of water
Δ	Increment or small part
θ	Angle of inclination of the failure arc with the horizontal
θ_A	Angle of inclination of the base of the active wedge with the horizontal

Symbol	Term
θ_P	Angle of inclination of the base of the passive wedge with the horizontal
σ	Normal stress
σ_{ff}	Normal stress on failure plane at failure (in laboratory shear test specimen)
σ_h	Horizontal stress on vertical plane
σ_i	Conjugate stress on a plane parallel to the outer slope
σ_1	Major principal stress
σ_3	Minor principal stress
$\sigma_1 - \sigma_3$	Deviator stress
$\overline{\sigma}_{fc}$	Effective normal stress on failure plane prior to start of test
$\overline{\sigma}_{ff}$	Effective normal stress on failure plane at failure
$\overline{\sigma}_1$	Effective major principal stress
$\overline{\sigma}_3$	Effective minor principal stress
τ	Shear stress
τ_{fc}	Shear stress on failure plane at end of consolidation
τ_{ff}	Shear stress on failure plane at failure
ϕ	Angle of internal friction (or slope angle of strength envelope) based on total stresses
ϕ'	Angle of internal friction (or slope angle of strength envelope) based on effective stresses
ϕ_D	Developed angle of internal friction (required for equilibrium)
ψ	Seismic coefficient, $\frac{a_h}{g}$